Amendments to the Claims

Listing of the Claims

This listing of the claims replaces all prior versions.

11. (Previously presented) A process for making high purity fatty acid lower alkyl esters, comprising the steps of:

(a) converting a source of fatty acids to a product mixture comprising fatty acid lower alkyl esters and by-products;

(b) water-washing the product mixture at an elevated temperature and an elevated pressure to remove at least a portion of the by-products from the product mixture; and

(c) fractionally distilling the water-washed product mixture to obtain high purity fatty acid lower alkyl esters; and

wherein at least a portion of the fatty acids have from about 20 to about 24 carbon atoms and further wherein the high purity fatty acid lower alkyl esters have an acid value of no greater than about 1.0.

12. (Previously Presented) A process according to claim 1, further comprising the step of collecting at least one fraction of high purity fatty acid lower alkyl esters during the step of fractionally distilling.

13. (Previously Presented) A process according to claim 12 wherein the high purity fatty acid lower alkyl esters have an acid value of less than about 0.5.

14. (Currently amended) A process according to claim 11 wherein the step of fractionally distilling is performed at a temperature of from about **[[**325°F**]]** 163°C to about **[[**475°F**]]** 246°C and in the absence of base.

15. (Currently amended) A process according to claim 11 wherein the step of fractionally distilling is performed at a temperature of from about **[[**475°F**]]** 246°C to about **[[**530°F**]]** 277°C and in the presence of a base.

16. (Previously Presented) A process according to claim 15 wherein step (c) comprises the steps of:

(1) fractionally distilling the water-washed product mixture to obtain a first portion of the fatty acid lower alkyl esters;

(2) neutralizing the remaining water-washed product mixture to an acid value of no more than about 0.2; and

(3) further fractionally distilling the neutralized water-washed product mixture to obtain a second portion of the fatty acid lower alkyl esters.

17. (Previously Presented) A process according to claim 11 wherein the source of fatty acids is an oil selected from the group consisting of hydrogenated and unhydrogenated fish oil, hydrogenated and unhydrogenated soybean oil, hydrogenated and unhydrogenated palm kernel oil, hydrogenated and unhydrogenated coconut oil, hydrogenated and unhydrogenated sunflower oil, hydrogenated and unhydrogenated safflower oil, hydrogenated and unhydrogenated corn oil, hydrogenated and unhydrogenated cottonseed oil, hydrogenated and unhydrogenated peanut oil, hydrogenated and unhydrogenated canola oil, hydrogenated and unhydrogenated high erucic acid rapeseed oil, and mixtures thereof.

18. (Previously Presented) A process according to claim 17 further comprising the step of subjecting the oil to at least one step selected from the group consisting of bleaching, deodorizing, hardening and alkali refining, before its conversion.

19. (Previously Presented) A process according to claim 11 further comprising the step of hardening the fatty acid lower alkyl ester.

20. (Previously Presented) A process according to claim 11 wherein the water-washed product mixture comprises no more than about 1000 ppm soap, no more than about 1000 ppm glycerides, and no more than about 100 ppm basic catalyst.

21. (Previously Presented) A process according to claim 12 wherein the fatty acid lower alkyl esters comprise behenic methyl ester.

22. (Previously Presented) A process according to claim 21 wherein the color of the behenic acid methyl ester is about 0.5 or less Lovibond yellow.

23. (Currently amended) A process according to claim 11 wherein the water-washing elevated temperature is from about **[[**70°F**]]** 21°C to about **[[**200°F**]]** 93°C and the water-washing elevated pressure is from about 760 mm Hg to about 1000 mm Hg.

24. (Currently amended) A process for making high purity fatty acid lower alkyl esters, comprising the steps of:

(a) converting a source of fatty acid to a product mixture comprising fatty acid lower alkyl esters and by-products;

(b) water-washing the product mixture at an elevated temperature and elevated pressure to remove at least a portion of the by-products from the product mixture; and

(c) fractionally distilling the water-washed product mixture to obtain high purity fatty acid lower alkyl esters; and

wherein the step of fractionally distilling is selected from the group consisting of fractionally distilling in the absence of base at a temperature of from about **[[**325°F**]]** 163°C to about **[[**475°F**]]** 246°C and fractionally distilling in the presence of base at a temperature of from about **[[**475°F**]]** 246°C to about **[[**530°F**]]** 277°C, and wherein at least a portion of the fatty acids have at least about 16 carbon atoms and further wherein the high purity fatty acid lower alkyl esters have an acid value of no greater than about 1.0.

25. (Previously Presented) A process according to claim 24 wherein the fatty acid lower alkyl esters comprise C18 methyl esters, C20 methyl esters and C22 methyl esters; and the process step (c) comprises the steps of collecting a first fraction comprising C18 methyl esters; collecting a second fraction comprising C18 methyl esters, C20 methyl esters and C22 methyl esters; and collecting a third fraction comprising C22 methyl esters.

26. (Previously Presented) A process according to claim 25 wherein the third fraction comprises from about 86% to about 95%, by weight, C22 methyl ester.

27. (Previously Presented) A process according to claim 26 wherein the fatty acid source is behenic acid glycerol ester and the fatty acid lower alkyl esters comprise behenic acid methyl ester; and wherein the color of the behenic acid methyl ester is about 0.5 or less Lovibond yellow.

28. (Previously Presented) A process for preparing fatty acid polyol polyester comprising the steps of:

(a) preparing high purity fatty acid lower alkyl esters by

(1) reacting a fatty acid glycerol ester with a lower alkyl alcohol in the presence of a catalyst to produce a product mixture of fatty acid lower alkyl ester, fatty acid glycerol ester and glycerol;

(2) separating the product mixture into a glycerol-containing phase and a fatty acid lower alkyl ester-containing phase;

(3) water-washing the fatty acid lower alkyl ester-containing phase at an elevated temperature and elevated pressure to remove at least a portion of by-products from the fatty acid lower alkyl ester-containing phase;

(4) fractionally distilling the resulting water-washed fatty acid lower alkyl ester; and

(5) collecting at least one fraction of highly purified fatty acid lower alkyl ester; and

(b) transesterifying the highly purified fatty acid lower alkyl ester of the collected fraction with a polyol to obtain a fatty acid polyol polyester; and

wherein the high purity fatty acid lower alkyl esters have an acid value of less than about 1.0.

29. (Previously Presented) A process according to claim 28 wherein the lower alkyl alcohol is methanol and the fatty acid glycerol ester is behenic acid glycerol ester.

30. (Previously Presented) A process according to claim 29 wherein the polyol polyester has a triglyceride level of less than about 0.5%, by weight.

31. (Previously Presented) A process for preparing a linked esterified alkoxylated polyol comprising the steps of:

(a) converting a source of fatty acids to a product mixture comprising fatty acid lower alkyl esters and by-products;

(b) water-washing the product mixture at an elevated temperature and an elevated pressure to remove at least a portion of the by-products from the product mixture;

(c) fractionally distilling the water-washed product mixture to obtain high purity fatty acid lower alkyl esters having an acid value of no greater than about 1.0;

(d) reacting a polyol with an epoxide to form an alkoxylated polyol;

(e) reacting the alkoxylated polyol with a linking segment to form a linked alkoxylated polyol; and

(f) transesterification of the linked alkoxylated polyol with the high purity fatty acid lower alkyl esters.

32-39. (Cancelled)

40. (New) A process for making high purity fatty acid lower alkyl esters, comprising the steps of:

(a) converting a source of fatty acids to a product mixture comprising fatty acid lower alkyl esters and by-products;

(b) water-washing the product mixture at a temperature of from about 60°C to about 93°C and an elevated pressure to remove at least a portion of the by-products from the product mixture; and

(c) fractionally distilling the water-washed product mixture to obtain high purity fatty acid lower alkyl esters; and

wherein at least a portion of the fatty acids have from about 20 to about 24 carbon atoms and further wherein the high purity fatty acid lower alkyl esters have an acid value of no greater than about 1.0.

41. (New) A process according to claim 40 wherein the step of fractionally distilling is performed at a temperature of from about 163°C to about 246°C and in the absence of base.

42. (New) A process according to claim 40 wherein the step of fractionally distilling is performed at a temperature of from about 246°C to about 277°C and in the presence of a base.

43. (New) A process according to claim 42 wherein step (c) comprises the steps of:

(1) fractionally distilling the water-washed product mixture to obtain a first portion of the fatty acid lower alkyl esters;

(2) neutralizing the remaining water-washed product mixture to an acid value of no more than about 0.2; and

(3) further fractionally distilling the neutralized water-washed product mixture to obtain a second portion of the fatty acid lower alkyl esters.

44. (New) A process according to claim 40 further comprising the step of hardening the fatty acid lower alkyl ester.

45. (New) A process according to claim 40 wherein the fatty acid lower alkyl esters comprise behenic methyl ester.

46. (New) A process according to claim 45 wherein the color of the behenic acid methyl ester is about 0.5 or less Lovibond yellow.

47. (New) A process according to claim 40 wherein the water-washing elevated temperature is from about 77°C to about 93°C and the water-washing elevated pressure is from about 760 mm Hg to about 1000 mm Hg.